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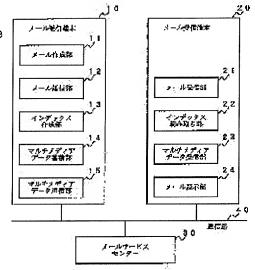
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(54) ELECTRONIC MAIL SYSTEM

(57)Abstract:

PROBLEM TO BE SOLVED: To send only data which a receiver needs to have in order to reduce the load on a communication path and also to improve the entire operation efficiency of an electronic mail system by sending multimedia data in response to the transmission request given from a mail receiving terminal.

SOLUTION: The mail receiving terminal 20 waits for input of a reference request to be given from a user for the multimedia data. When a reference request is received for the prescribed multimedia data, a multimedia data receiving part 23 requests a mail transmitting terminal 10 to send the multimedia data based on the information which is analyzed by an



index reading part 22. If a user reject the reference to the multimedia data, these data deleted at the terminal 10. Thus, the multimedia data are directly sent by a user's request with no intervention of a mail service center 30. As a result, the burden of the center 30 can be reduced.

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CLAIMS

[Claim(s)]

[Claim 1]A transmitting mail terminal which transmits an E-mail, comprising, A mail receiving terminal which is an address of this E-mail, and a mail service center which provides an e-mail service which relays an E-mail transmitted from said transmitting mail terminal, and is passed to said mail receiving terminal, An electronic mail system provided with a channel which connects said transmitting mail terminal, said mail receiving terminal, and said mail service center, and serves as communication media of an E-mail.

An index preparing means which said transmitting mail terminal extracts this multimedia data from an E-mail containing multimedia data, and assigns an index.

A multimedia data accumulation means to store and hold said multimedia data which had an index assigned by said index preparing means.

A mail transmission means which adds said index created by said index preparing means by portion which sampled said multimedia data from said E-mail, and transmits to said mail service center.

A multimedia data sending means which transmits multimedia data corresponding to this demand when there is a Request to Send from said mail receiving terminal.

[Claim 2]When there is a Request to Send from said mail receiving terminal, said multimedia data sending means, The electronic mail system according to claim 1 transmitting multimedia data corresponding to this demand to said mail receiving terminal directly without going via said mail service center.

[Claim 3]A transmitting mail terminal which transmits an E-mail, comprising, A mail receiving terminal which is an address of this E-mail, and a mail service center which provides an e-mail service which relays an E-mail transmitted from said transmitting mail terminal, and is passed to said mail receiving terminal, An electronic mail system provided with a channel which connects said transmitting mail terminal, said mail receiving terminal, and said mail service center, and serves as communication media of an E-mail.

An index preparing means which said mail service center extracts this multimedia data from an E-mail containing multimedia data, and assigns an index.

A multimedia data accumulation means to store and hold said multimedia data which had an index assigned by said index preparing means.

A mail transmission means which adds said index created by said index preparing means by portion which sampled said multimedia data from said E-mail, and waits for and distributes access from said mail receiving terminal.

A multimedia data sending means which transmits multimedia data corresponding to this demand when there is a Request to Send from said mail receiving terminal.

[Claim 4]Claim 1 thru/or the electronic mail system according to claim 3 characterized by comprising the following.

An index reading means which analyzes this index and acquires information about said multimedia data when an index of multimedia data is added to an E-mail which said mail receiving terminal received.

A multimedia data receiving means which receives said multimedia data which performed a Request to Send of multimedia data specified based on information acquired by said index reading means according to directions from a user to said transmitting mail terminal, and was transmitted from said transmitting mail terminal.

An e-mail displaying means which inserts and displays said multimedia data received by said multimedia data receiving means on a position of said E-mail specified based on information acquired by said index reading means.

[Claim 5]When said multimedia data receiving means has not received multimedia data, said e-mail displaying means, The electronic mail system according to claim 4 displaying an integrated image which inserted an icon set as a position which should insert this multimedia data based on information acquired by said index reading means corresponding to the attribute of this multimedia data.

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DETAILED DESCRIPTION

[Detailed Description of the Invention] [0001]

[The technical field to which an invention belongs] Especially this invention relates to the

electronic mail system which realizes mitigation of the load to a channel, when transmitting the E-mail having contained the multimedia data of image data, voice data, etc. about an electronic mail system.

[0002]

[Description of the Prior Art]When the E-mail which contained the multimedia data of image data, voice data, etc. in the electronic mail system is transmitted conventionally, The multimedia data contained in an E-mail was transmitted to the same timing, without distinguishing the kind of data of image data, voice data, text data, etc. [0003]As conventional technology of the electronic mail system treating this kind of multimedia data, there is an information-sharing type electronic mail system indicated by JP,6-290122,A, for example. According to the electronic mail system indicated in the gazette, structurize multimedia data, divide for every kind of data, and it is dealt with independently, When showing the received mail, multimedia data is reproduced by reproducing each information based on the structure specified at the time of transmission, but the transmission of an E-mail itself is not concerned with the kind of data, but it is performed simultaneously.

[0004]There is an e-mail system indicated by JP,7-66830,A as this kind of other conventional technologies. According to the electronic mail system indicated in the gazette, in addition to dividing multimedia data for every kind of data, and dealing with it independently, when the receiver does not support multimedia data, have the function to read and throw away the received data, but. The point which the transmission of an E-mail itself is not concerned with the kind of data, but is performed simultaneously is the same. [0005]Thus, in the conventional electronic mail system. When the E-mail containing multimedia data was treated, even if the multimedia data which an e-mail addressee does not need, and the multimedia data of the kind which cannot be reproduced and used were contained, it had transmitted together with other text data, without being concerned in any way.

[0006]

[Problem(s) to be Solved by the Invention]When unnecessary load was applied to the channel which the network service of an E-mail or others uses, there was a problem of causing decline in the operation efficiency of a system in the above-mentioned conventional electronic mail system. Since it will not be concerned with whether to lend and there to be that an e-mail addressee refers to multimedia data but multimedia data will be transmitted, when treating the E-mail containing multimedia data, as the reason was described above, It is because transmission of the multimedia data concerned turns into meaningless communication and a channel is vainly used, when this multimedia data is not referred to as a result.

[0007]The purpose of this invention solves the above-mentioned conventional problem, transmits only the data which an addressee needs about the E-mail having contained multimedia data, makes the load to a channel reduce, and there is in providing the

electronic mail system which aims at improvement in the operation efficiency of the whole system.

[8000]

[Means for Solving the Problem]A transmitting mail terminal in which this invention transmits an E-mail in order to attain the above-mentioned purpose, A mail receiving terminal which is an address of this E-mail, and a mail service center which provides an e-mail service which relays an E-mail transmitted from said transmitting mail terminal, and is passed to said mail receiving terminal, An electronic mail system provided with a channel which connects said transmitting mail terminal, said mail receiving terminal, and said mail service center, and serves as communication media of an E-mail is characterized by comprising:

An index preparing means which said transmitting mail terminal extracts this multimedia data from an E-mail containing multimedia data, and assigns an index.

A multimedia data accumulation means to store and hold said multimedia data which had an index assigned by said index preparing means.

A mail transmission means which adds said index created by said index preparing means by portion which sampled said multimedia data from said E-mail, and transmits to said mail service center.

A multimedia data sending means which transmits multimedia data corresponding to this demand when there is a Request to Send from said mail receiving terminal.

[0009]Said multimedia data sending means by this invention of claim 2 transmits multimedia data corresponding to this demand to said mail receiving terminal directly, without going via said mail service center, when there is a Request to Send from said mail receiving terminal.

[0010]A transmitting mail terminal in which this invention of claim 3 transmits an E-mail, and a mail receiving terminal which is the addresses of this E-mail, A mail service center which provides an e-mail service which relays an E-mail transmitted from said transmitting mail terminal, and is passed to said mail receiving terminal, An electronic mail system provided with a channel which connects said transmitting mail terminal, said mail receiving terminal, and said mail service center, and serves as communication media of an E-mail is characterized by comprising:

An index preparing means which said mail service center extracts this multimedia data from an E-mail containing multimedia data, and assigns an index.

A multimedia data accumulation means to store and hold said multimedia data which had an index assigned by said index preparing means.

A mail transmission means which adds said index created by said index preparing means by portion which sampled said multimedia data from said E-mail, and waits for and distributes access from said mail receiving terminal.

A multimedia data sending means which transmits multimedia data corresponding to this

demand when there is a Request to Send from said mail receiving terminal.

[0011]This invention of claim 4 is characterized by said mail receiving terminal comprising the following.

An index reading means which analyzes this index and acquires information about said multimedia data when an index of multimedia data is added to a received E-mail.

A multimedia data receiving means which receives said multimedia data which performed a Request to Send of multimedia data specified based on information acquired by said index reading means according to directions from a user to said transmitting mail terminal, and was transmitted from said transmitting mail terminal.

An e-mail displaying means which inserts and displays said multimedia data received by said multimedia data receiving means on a position of said E-mail specified based on information acquired by said index reading means.

[0012]Said e-mail displaying means by this invention of claim 5, When said multimedia data receiving means has not received multimedia data, An integrated image which inserted an icon set as a position which should insert this multimedia data based on information acquired by said index reading means corresponding to the attribute of this multimedia data is displayed.

[0013]

[Embodiment of the Invention]Hereafter, the example of this invention is described in detail with reference to drawings.

[0014] <u>Drawing 1</u> is a block diagram showing the composition of the electronic mail system by one example of this invention.

[0015]The electronic mail system of this example is provided with the following like a graphic display.

The transmitting mail terminal 10 which transmits an E-mail.

The mail receiving terminal 20 which receives an E-mail.

The channel 40 and the mail service center 30 for providing an e-mail service.

Although two or more terminal units constituted similarly are actually connected to the channel 40 and both a transmitting mail function and an e-mail receiving function are realized as a function of each terminal unit, since the difference in a function is specified, it divides into the transmitting mail terminal 10 and the mail receiving terminal 20 with the figure. Only the characteristic composition of this example is indicated to the figure, and the statement is omitted about other composition.

[0016]The transmitting mail terminal 10 is provided with the following.

The e-mail preparing part 11 which is realized by a personal computer, workstation terminal unit, etc. and creates an E-mail.

The mail sending part 12 which transmits the E-mail which does not contain multimedia data.

The index preparing part 13 for extracting the multimedia data contained in an E-mail, and transmitting separately from other portions, the multimedia data accumulation part 14, the multimedia data transmission part 15.

[0017]CPU and input devices, such as a keyboard, by which programmed control was carried out realize, and the e-mail preparing part 11 creates an E-mail using a predetermined user interface. The function in which the text editor which inputs a document, the video editor into which an animation is edited, the drawing tool which creates a figure, the audio editor which carries out [sound] sound recording edit, etc. were unified as environment for creating an E-mail is provided. Thereby, the multimedia data of image data, voice data, etc. can be included in an E-mail.

[0018] The mail sending part 12 transmits the E-mail which was realized by the interface corresponding to CPU and the channel 40 by which programmed control was carried out, etc., and was created by the text data to the mail service center 30 via the channel 40. This will use the e-mail service which the mail service center 30 provides. The E-mail used as a transmission object is with the E-mail which comprises the index preparing part 13 which a mail text mentions later from the E-mail created only by the text data, and the E-mail created including multimedia data in the remaining portion that extracted multimedia data. [0019]It realizes by CPU etc. by which programmed control was carried out, and the index preparing part 13 extracts multimedia data out of the E-mail containing the multimedia data created by the e-mail preparing part 11, creates the index of the multimedia data concerned, and attaches it to an E-mail. That is, the portions of the multimedia data first contained in an E-mail and the other text data are divided, an index is assigned to the extracted multimedia data, the index concerned is created, and it adds to the text data part of an E-mail. A mail text, the e-mail sender, an e-mail address, an e-mail title, etc. are contained in text data. The binary data etc. which the image data containing still pictures, such as voice data, an animation and a picture, and a drawing, a measuring machine machine, etc. generate correspond to multimedia data. The composition of the E-mail to which the index was added is shown in drawing 4. Like a graphic display, the predetermined information for specifying the multimedia data concerned is described by the index, and the kind of data, the display position at the time of displaying on an E-mail, and the storage place of the data concerned are included in it in the example of a graphic display.

[0020]The multimedia data accumulation part 14 stores and holds the multimedia data which was realized by memory storage, such as memories, such as RAM, and a magnetic disk drive, etc., and was extracted from the E-mail by the index preparing part 13. At this time, the storing position of the multimedia data concerned in the multimedia data accumulation part 14 is described by the index by the index preparing part 13. The multimedia data stored in the multimedia data accumulation part 14 is deleted from the multimedia data accumulation part 14, when the abandonment demand of the multimedia

concerned is received after transmission of the multimedia data concerned or from the mail receiving terminal 20. After being stored in the multimedia data accumulation part 14, it may be made to be automatically deleted after fixed time lapse.

[0021]The multimedia data transmission part 15 is realized by the interface corresponding to CPU and the channel 40 by which programmed control was carried out, etc., According to the demand from the mail receiving terminal 20, the multimedia data concerned is read from the multimedia data accumulation part 14, and it transmits to the mail receiving terminal 20 via the channel 40. Here, transmission of the multimedia data from the multimedia data transmission part 15 to the mail receiving terminal 20 is performed only through the channel 40, without relaying the mail service center 30.

[0022]The mail receiving terminal 20 is provided with the following.

The e-mail receive section 21 which receives the E-mail which is realized by a personal computer, workstation terminal unit, etc. and does not contain multimedia data.

The index read station 22 which reads the index of the multimedia data added to the E-mail.

The multimedia data receiving section 23 for receiving multimedia data.

The e-mail indicator 24 which displays an E-mail.

[0023]The interface corresponding to CPU and the channel 40 by which programmed control was carried out, etc. realize, and the e-mail receive section 21 accesses the mail service center 30, and receives an E-mail.

[0024] The index read station 22 is realized by CPU etc. by which programmed control was carried out, When the index of multimedia data is contained in the E-mail received in the e-mail receive section 21, the information for analyzing the index concerned and processing the multimedia data concerned of the Request-to-Send place of the multimedia data concerned, the method of presentation, a display place, etc. is acquired.

[0025]The multimedia data receiving section 23 is realized by CPU and input devices, such as a keyboard, by which programmed control was carried out, and the interface corresponding to the channel 40, Based on the information about the multimedia data acquired in the index read station 22, transmission of multimedia data is required from the transmitting mail terminal 10, and the multimedia data sent from the transmitting mail terminal 10 according to the demand concerned is received.

[0026]The e-mail indicator 24 displays the E-mail which was realized with CPU and displays, such as a CRT display device, by which programmed control was carried out, and was received in the e-mail receive section 21, and the multimedia data received by the multimedia data receiving section 23. Here, only the text data is contained in the E-mail concerned in the stage in which the e-mail receive section 21 received the E-mail. So, when the index of multimedia data is added to the E-mail concerned. According to the information acquired in the analysis of the index read station 22, The icon (icon set up according to the kind of image data, voice data, etc.) corresponding to the multimedia data

concerned is displayed on the position which should display the multimedia data concerned, and the image unified with the text of the mail text is displayed. And when the Request to Send of the multimedia data corresponding to the icon concerned is made from the multimedia data receiving section 23 by a user's operation and the multimedia data concerned is replaced with an icon and displayed. When the multimedia data concerned cannot display directly like voice data, the interfaces (icon etc.) which reproduce the data concerned are displayed.

[0027]The mail service center 30 provides an e-mail service like the service center in the conventional electronic mail system.

[0028]It realizes in a predetermined LAN line and WAN circuit, and the channel 40 connects the transmitting mail terminal 10, the mail receiving terminal 20, and the mail service center 30, and distributes the multimedia data referred to with an E-mail and an E-mail.

[0029]Next, with reference to the flow chart of <u>drawing 2</u> and <u>drawing 3</u>, operation of the electronic mail system of this example constituted as mentioned above is explained.

<u>Drawing 2</u> is a flow chart which shows operation of the transmitting mail terminal 10, and drawing 3 is a flow chart which shows operation of the mail receiving terminal 20.

[0030]First, an E-mail is created by the e-mail preparing part 10 in the transmitting mail terminal 10. Creation of an E-mail is completed, and if operation in which a user transmits the E-mail concerned is performed, the mail data of the E-mail concerned will be sent to the index preparing part 13. And the mail data which the index preparing part 13 received divides into multimedia data and the other portion (drawing 2, Step 201).

[0031]If two or more multimedia data divided from the E-mail exists, it will divide for every multimedia data of further each, and the index which shows the storage place in the attribute and the multimedia data accumulation part 14 of data, respectively will be decided (Step 202). And the index assigned for every multimedia data is added to text data after extracting multimedia data from mail data (Step 203).

[0032]Next, the mail sending part 11 sends the E-mail which consists of text data to which the index was added to the mail service center 30 through the channel 40 (Step 204). On the other hand, the multimedia data extracted from mail data is made into the index and pair which were assigned at Step 202, and is kept to the multimedia data accumulation part 14. (Step 205)

Then, the transmitting mail terminal 10 waits the Request to Send of the multimedia data from the mail receiving terminal 20, and it keeps the contents of the multimedia data accumulation part 14 until it receives the demand concerned.

[0033]When the Request to Send of multimedia data is received from the mail receiving terminal 20, the multimedia data transmission part 15, The multimedia data which compares an index and corresponds is specified, the multimedia data concerned is read from the multimedia data accumulation part 14, and it transmits to the mail receiving terminal 20 directly through the channel 40 (Steps 206 and 207). Then, the multimedia data accumulation part 14 deletes the multimedia data which carried out the sending end, and a

corresponding index (Step 209).

[0034]When not the Request to Send of multimedia data but the abandonment demand of the multimedia data concerned is received from the mail receiving terminal 20, The multimedia data accumulation part 14 deletes the multimedia data which carried out the sending end, and a corresponding index, without transmitting the multimedia data concerned (Steps 206, 208, and 209).

[0035]Transmitting processing of the E-mail by the transmitting mail terminal 10 is completed above. In the multimedia data accumulation part 14, when a suitable term is provided and neither the Request to Send of multimedia data nor an abandonment demand is made from the mail receiving terminal 20 within the term concerned, the multimedia data concerned and index may be deleted. That is, when an addressee considers that it is not interested in the data concerned and deletes data in this case, an e-mail addressee's carelessness and useless use of the multimedia data accumulation part 14 by negligence are avoidable.

[0036]Next, in the mail receiving terminal 20, the mail service center 30 is accessed first and the e-mail receive section 21 receives the E-mail which has reached the mail receiving terminal 20 concerned (drawing 3, Step 301). And the index data read station 22 detects and reads the index information data of multimedia data from the E-mail received in the e-mail receive section 21 (Step 302), Based on the index information data concerned, the information where [of the transmitting mail terminal 10] multimedia data is kept and what kind of data should be displayed on which position when displaying an E-mail is analyzed (Step 303). The e-mail indicator 24 replaces the portion of multimedia data with a corresponding icon based on the information analyzed by the index read station 22, and displays the image unified with the text of the mail text (Step 304).

[0037]In this state, the mail receiving terminal 20 waits the input of the reference request of the multimedia data from a user. The reference request of multimedia data is performed by moving cursor over the icon of the multimedia data which it is going to refer to for example, and inputting a predetermined command.

[0038]When there is a demand which refers to predetermined multimedia data, the multimedia data receiving section 23 requires transmission of multimedia data based on the information analyzed by the index read station 22 to the transmitting mail terminal 10 (Steps 305 and 306). And if the demanded multimedia data is received from the multimedia data transmission part 15 (Step 307), The e-mail indicator 24 replaces with and displays the multimedia data received by the multimedia data receiving section 23 on the icon which was being displayed till then (Step 308).

[0039]In Step 305, a user performs the abandonment demand of the multimedia data concerned to the multimedia data accumulation part 14 about the data which refused reference of multimedia data (Step 309).

[0040]The reception of the E-mail by the mail receiving terminal 20 is completed above. As mentioned above, in this example, since it is directly transmitted via the mail service center

30 by the demand from a user, multimedia data can ease the burden of the mail service center 30 by it.

[0041]When a user refuses reference of multimedia data, the multimedia data concerned is deleted in the transmitting mail terminal 10, without being transmitted to the mail receiving terminal 20. Therefore, since the unnecessary multimedia data which is not referred to at a user does not pass along the channel 40, it does not apply excessive addition to the channel 40.

[0042]As other examples of this invention, the index preparing part 13, the multimedia data accumulation part 14, and the multimedia data transmission part 15 can be installed in the mail service center 30.

[0043]In this case, the transmitting mail terminal 10 is not concerned with the existence of multimedia data, but transmits the created E-mail to the mail service center 30 as it is. And in the mail service center 30, extraction of multimedia data and setting out of an index are performed, and an index is added to an E-mail. After it receives an E-mail, if the mail receiving terminal 20 is required, it will perform the Request to Send of multimedia data to the mail service center 30. The mail service center 30 transmits multimedia data applicable when the Request to Send of the multimedia data from the mail receiving terminal 20 is received to the mail receiving terminal 20.

[0044]According to this example, transmission of the multimedia data from the transmitting mail terminal 10 to the mail service center 30 is performed, but. When a user refuses reference of multimedia data, transmission of the multimedia data from the mail service center 30 to the mail receiving terminal 20 is not performed. Therefore, the addition in the channel 40 is reduced.

[0045]Although the desirable example was given above and this invention was explained, this invention is not necessarily limited to the above-mentioned example. For example, when transmitting multimedia data, in a multimedia data transmission part, data is compressed by a predetermined method, It cannot be overemphasized that the addition which it may be made to restore the multimedia data compressed in the multimedia data receiving section, reduces the data volume which flows through a channel by this, and is given to a channel is further mitigable.

[0046]

[Effect of the Invention]As explained above, according to this invention, in order that multimedia data may not flow through a channel until an e-mail addressee demands transmission of multimedia data, it is effective in it being avoidable that unnecessary data transmission which uses a channel is performed.

[0047]Since especially multimedia data uses a comparatively big bandwidth also in the data of the various network services which use a channel, By preventing unnecessary data from flowing into a channel, it is effective in the ability to use the bandwidth of the limited channel effectively among various network services.

[0048]In this invention, if the accumulation means and transmitting means of multimedia

data are installed in the terminal unit by the side of transmitting mail, Since multimedia data can be transmitted to the terminal unit of a direct mail receiver, without relaying a mail service center even when the Request to Send of multimedia data is made, it is effective in the burden of a mail service center being mitigable.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a block diagram showing the composition of the electronic mail system by one example of this invention.

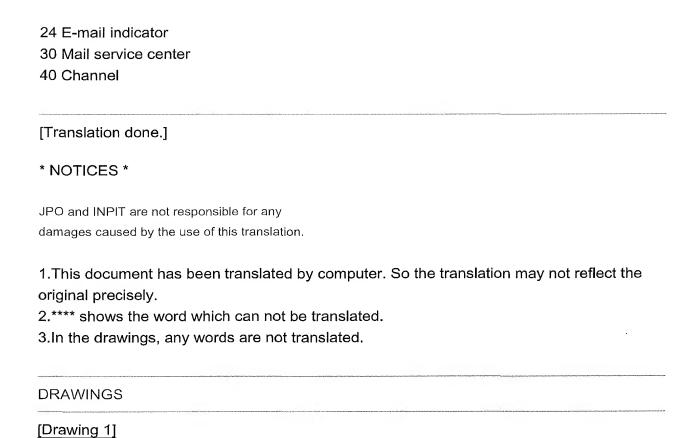
[Drawing 2]It is a flow chart figure showing operation of the transmitting mail terminal in this example.

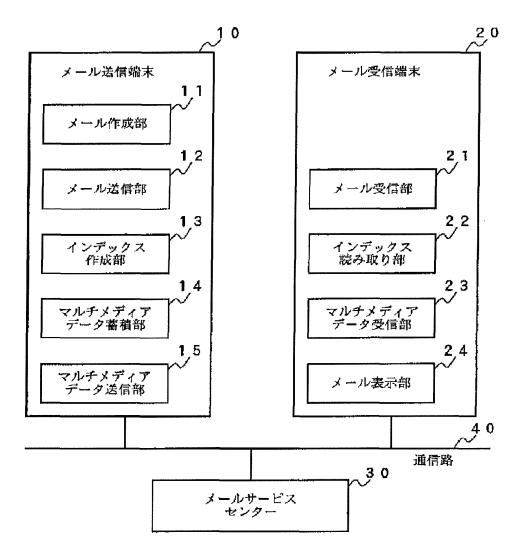
[Drawing 3]It is a flow chart figure showing operation of the mail receiving terminal in this example.

[Drawing 4]It is a figure showing the structure of the mail data which constitutes the E-mail in this example.

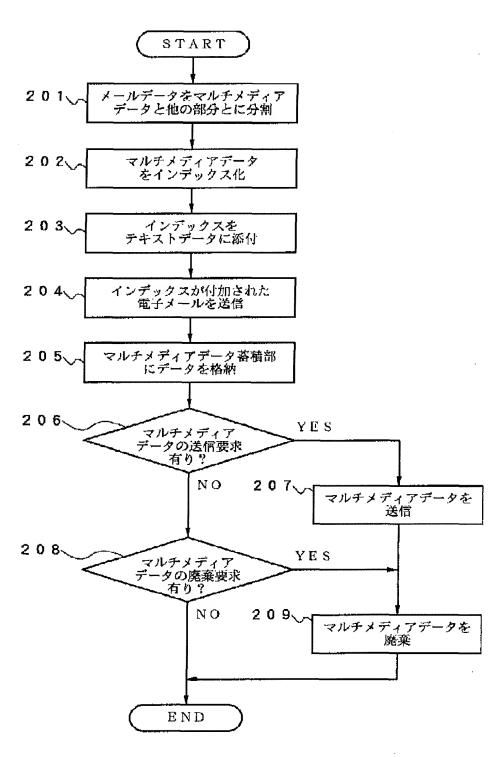
[Description of Notations]

- 10 Transmitting mail terminal
- 11 E-mail preparing part
- 12 Mail sending part
- 13 Index preparing part
- 14 Multimedia data accumulation part
- 15 Multimedia data transmission part
- 20 Mail receiving terminal
- 21 E-mail receive section
- 22 Index read station
- 23 Multimedia data receiving section

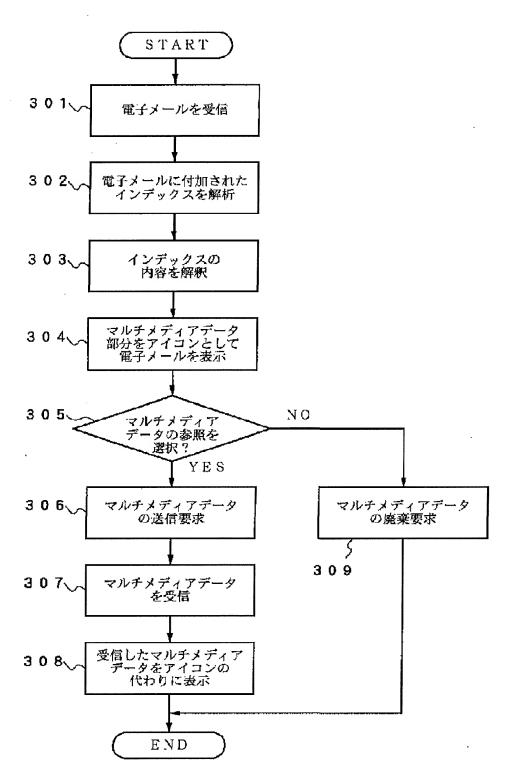




[Drawing 2]



[Drawing 3]



[Drawing 4]

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